Site Selection for Strategic Petroleum Reserve Expansion

Proposed Action Information

U.S. Department of Energy
Office of Strategic Petroleum Reserve

December 2005

Submit Comments

Interested agencies, organizations, Native American tribes, and members of the public are encouraged to submit comments or suggestions during the scoping period. All comments must be received or postmarked by:

Monday, December 19, 2005.

Envelopes and the subject line of faxes or e-mails should be labeled: "Scoping for the SPR EIS." Please note that, due to anthrax screening, incoming letters and packages to DOE may be delayed by 7-10 days.

Send to:

Donald Silawsky
Office of Petroleum Reserves (FE-47)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585-0301
Ph: (202) 586-1892
Fax: (202) 586-4446
Email: Donald.Silawsky@hq.doe.gov

For More Information

SPR project questions
www.fe.doe.gov

DOE NEPA process questions
http://www.eh.doe.gov/nepa

Introduction

The Strategic Petroleum Reserve (SPR) was established by the Energy Policy and Conservation Act of 1975. It consists of underground oil storage facilities that can be used to protect the United States from oil supply interruptions. Currently, the storage capacity of the SPR is 727 million barrels of oil. In August 2005, President Bush signed the Energy Policy Act of 2005, which directs the U.S. Department of Energy (DOE) to select sites necessary to reach the full authorized capacity of one billion barrels of oil (see Section 303 below).

Under the National Environmental Policy Act (NEPA), Federal agencies must consider environmental values and factors in planning and making decisions about major projects. In accordance with this law, DOE will prepare an Environmental Impact Statement (EIS). Interested agencies, organizations, Native American tribes, and members of the public are invited to participate in the EIS process by providing comments or suggestions throughout the EIS development. This sheet provides background information about the project and explains the public involvement opportunities available throughout the NEPA process.

Energy Policy Act of 2005, Section 303, Site Selection

"Not later than 1 year after the date of enactment of this Act, the Secretary shall complete a proceeding to select, from sites that the Secretary has previously studied, sites necessary to enable acquisition by the Secretary of the full authorized volume of the Strategic Petroleum Reserve. In such proceeding, the Secretary shall first consider and give preference to the five sites which the Secretary previously addressed in the Draft Environmental Impact Statement, DOE/EIS-0165-D. However, the Secretary, in his discretion may select other sites as proposed by a State where a site has been previously studied by the Secretary to meet the full authorized volume of the Strategic Petroleum Reserve."

(Public Law 109-58)

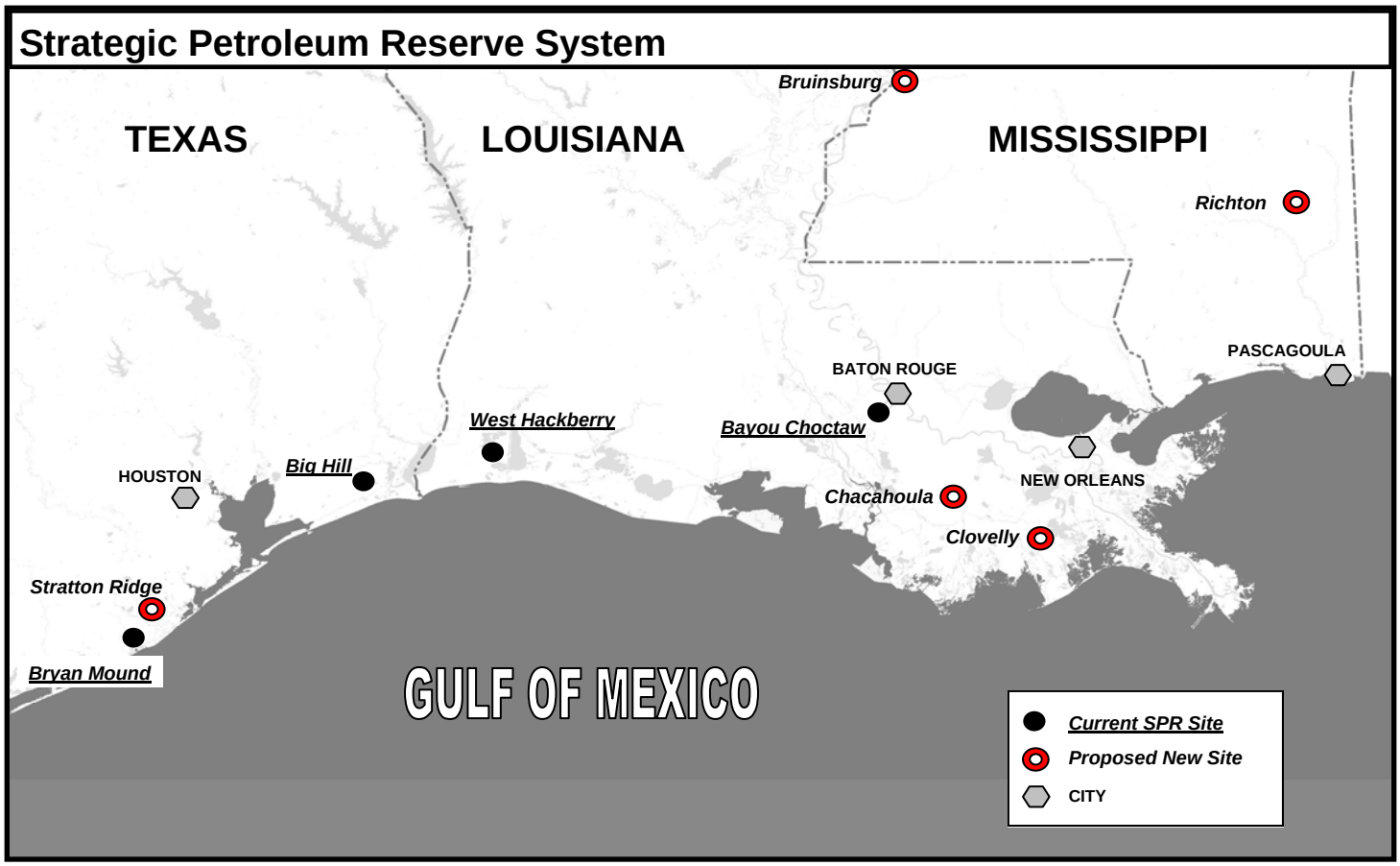

Figure 1: Location of Strategic Petroleum Reserve existing and proposed new sites.

Background

The SPR currently consists of four underground oil storage facilities along the Gulf Coast: two in Louisiana (Bayou Choctaw and West Hackberry) and two in Texas (Big Hill and Bryan Mound). The administrative office that oversees the SPR facilities is located in New Orleans, Louisiana. At the storage facilities, crude oil is stored in caverns constructed by the solution mining of rock salt formations, also called salt domes.

The EIS will analyze the impacts of expanding the existing SPR facilities at Big Hill, Texas; West Hackberry, Louisiana; and Bayou Choctaw, Louisiana. The EIS will also analyze the potential development of a new oil storage facility. The new oil storage facility site alternatives are Clovelly, Louisiana; Chacahoula, Louisiana; Richton, Mississippi; Bruinsburg, Mississippi; and Stratton Ridge, Texas (see Figure 1). Proposed new sites were selected from salt domes previously studied by DOE for crude oil storage and on the recommendations by the State of Louisiana and the State of Mississippi.

The Gulf Coast is generally chosen for petroleum storage due to the number of salt domes located in this area. Salt domes are large, stable, underground salt deposits that offer secure and economical centralized crude oil storage in caverns. Because crude oil must be refined into products such as gasoline and home heating oil before use by consumers, the best locations for storage facilities are near existing distribution pipelines, terminals and refineries in the Gulf Coast region. The proposed new sites would enhance the SPR's ability to provide petroleum products quickly and efficiently throughout the nation.

Description of Proposed Action

The proposed action is to expand SPR storage capacity to one billion barrels by expanding existing sites at Big Hill, Bayou Choctaw, and West Hackberry, and by developing one new oil storage site with up to 160 million barrels of storage capacity at either Clovelly, Louisiana; Chacahoula, Louisiana; Richton, Mississippi; Bruinsburg, Mississippi; or Stratton Ridge, Texas.

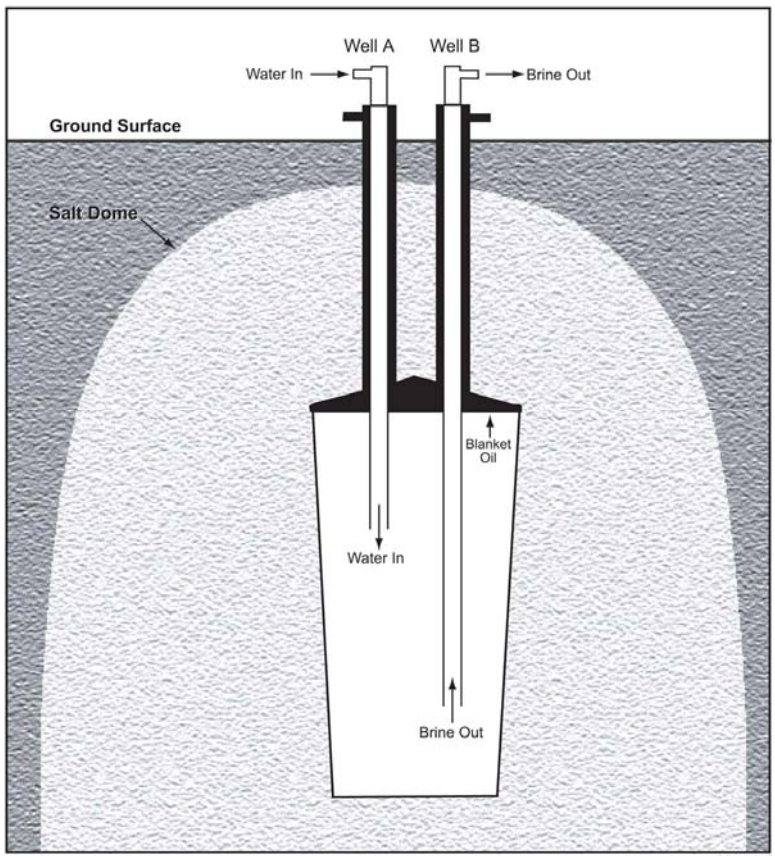

Figure 2: Cavern Leaching

For both existing site expansions and a new site, DOE would create oil storage caverns in rock salt formations from 1,500 to 6,000 feet below ground surface. To create a storage cavern, two wells are drilled into the salt dome approximately 40 feet apart (see Figure 2). Fresh or salt water is injected through Well A, dissolving a portion of the salt dome. The water becomes brine (salty water), which is removed from the cavern through Well B. This technique is called solution mining. Solution mining generates approximately 70 million barrels of brine per 10 million barrels in cavern space created.

Once the cavern is completed, oil is pumped into the well, displacing the remaining brine. After going through a settling pond and brine-oil separator, the brine is disposed of by pipeline to diffusers in the Gulf of Mexico. The diffusers minimize localized changes in salinity by widely dispersing the brine. Another disposal option is the injection of brine into underground sources of salt water.

All SPR salt dome storage sites require a raw water system, a brine disposal system, a crude oil distribution system, and support facilities. The raw water system pumps water from an adequate body of water to the storage site through pipelines. The brine disposal system disposes of brine by pipeline through diffusers in the Gulf of Mexico or by underground injection into saltwater-bearing rock formations. Each facility must be connected to a crude oil distribution system in order to fill the cavern for storage or distribute that oil during drawdown. This generally involves a series of pumps to inject and withdraw oil and pipelines to connect the storage facility to existing oil distribution networks. The support facilities may include administrative buildings, laboratories, maintenance shops, security buildings, and warehouses. The proposed expansions of existing SPR facilities would, in general, use the existing infrastructure and pipelines. Expanding the Big Hill site, however, would require additional pumping systems to increase the site's drawdown rate and the construction of an additional pipeline to Nederland, Texas, for oil distribution.

(Continued from page 3)

The development of a new site would require the construction of major surface buildings, structures, and pipelines. DOE will assess each of the following proposed new oil storage site alternatives to choose one for SPR expansion.

- **Clovelly, Louisiana** site would be co-located on the salt dome with the Louisiana Offshore Oil Port (LOOP) petroleum storage terminal and would use existing commercial oil distribution and brine disposal infrastructure.
- **Chacahoula, Louisiana** site would require building a 58-mile pipeline for brine disposal to the Gulf of Mexico; a 7-mile raw water pipeline to the Intercoastal Waterway; a 50-mile oil distribution pipeline to the LOOP petroleum storage terminal at Clovelly; and a 21-mile crude oil pipeline to the marine facilities in St. James, Louisiana.
- **Richton, Mississippi** site would require two, co-located pipelines to Pascagoula, Mississippi: a 96-mile brine disposal pipeline to the Gulf of Mexico and an 83-mile oil distribution pipeline. It would also require an 118-mile oil distribution pipeline to the Capline Interstate Pipeline injection station at Liberty, Mississippi; a10-mile raw water pipeline from the Leaf River; and new marine oil distribution facilities, such as docks and storage tanks, at the Port of Pascagoula.
- **Bruinsburg, Mississippi** site would require a 39-mile pipeline to Capline Internatinal Pipeline station at Peetsville, Mississippi; a 105-mile pipeline to Baton Rouge, Louisiana with 60 brine disposal injection wells spaced along the right-of-way; and a new marine terminal in the Baton Rouge/Port Allen area.
- **Stratton Ridge, Texas** site would require an 11-mile brine disposal pipeline to the Gulf of Mexico; a 6.5-mile raw water pipeline to the Intercoastal Waterway; and a 37-mile oil distribution pipeline to Texas City, Texas.

DOE will assess a range of capacity expansions for the three existing oil storage sites. Actual capacity expansions will depend on which new site is selected. This will allow DOE to assess a wide range of configurations to achieve the one billion barrel storage capacity, as mandated by the Energy Policy Act of 2005. In addition, DOE will assess the no action alternative in accordance with NEPA regulations.

For More Information

Additional information on the Strategic Petroleum Reserve and this proposed project, including relevant DOE documents, may be found on the DOE Fossil Energy Web site at: www.fe.doe.gov.

Copies of public hearing transcripts, the Draft EIS when issued, and other relevant documents will be available during normal business hours at the following locations:

Texas
Brazoria County, Texas
Lake Jackson Library
250 Circle Way
Lake Jackson, TX 77566

Louisiana
Terrebonne Parish, Louisiana
Terrebonne Parish Public Library
151 Civic Center Boulevard
Houma, LA 70360

Lafourche Parish, Louisiana
Martha Sowell Utley Memorial Library
Thibodaux Branch
314 St. Mary Street
Thibodaux, LA 70301-2620

Mississippi
Perry County, Mississippi
Richton Public Library
210 N. Front Street
Richton, MS 39476

Jackson, Mississippi
Eudora Welty Library
300 North State Street
Jackson, MS 39201

Claiborne County, Mississippi
Harriette Person Library
606 Market Street
Port Gibson, MS 39150